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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,906	07/31/2003	Li-Yi Chen	SUND 470	9613

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EXAMINER	
LIANG, REGINA	
ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,906	CHEN, LI-YI	
	Examiner	Art Unit	
	Regina Liang	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 13-19, 28, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishihara (US. PA.T NO. 6,014,126).

As to claims 1, 15, Figs. 1 and 5 of Nishihara discloses a method of frame processing in which a plurality of frames are sequentially fed into a frame processing device (frequency converting circuit 2) at a first refresh rate (first frame frequency S2), wherein the frame processing device controls a refresh rate of the frames to be displayed in a display device, the method comprising the steps of: inputting a first input frame; inputting a second input frame (the display data having a plurality of frames sequentially fed into the frame memory 4 frame by frame, it is inherent the display data including first input frame and second input frame, the second input frame is inputted after the first input frame); determining a plurality of corresponding output frames according to the first and second input frames, wherein the second input frame is input into the frame processing device after the first input frame is input; and outputting the output frames sequentially from the frame processing device at a second refresh rate (second frame frequency S7; see col. 6, lines 36-49, col. 7, lines 58-64 for example).

As to claim 2, Nishihara teaches the frequency of the standard clock is set in such a manner that the image data are read out from the frame memory 4 faster than they are written

into the memory 4 such that the image data can be read out a number of times from the memory while the image data of the one frame are written into the memory (col. 7, lines 58-65), which reads on the relationship among the input frames and the corresponding output frames is pre-stored (pre-set) in the frame processing device as claimed.

As to claims 3, 18, Nishihara teaches the second refresh rate is greater than the first refresh rate (the second frame frequency is higher than or faster than the first frame frequency).

As to claims 4, 19, Nishihara teaches the second frame frequency is a multiple of the first frame frequency (col. 6, lines 42-44).

As to claims 13, 28, Nishihara teaches the display device (10b) is a LCD panel.

As to claims 14, 29, Nishihara teaches the relationship among the input frames and the corresponding output frames is determined (set by the clock generating unit) by the physical properties of the LCD panel, the luminance of the LCD panel, and he brightness perceived by unman eyes (col. 7, lines 58-65).

As to claim 16, Nishihara teaches a frame memory device (4, 6, 8) storing input frames and output frames.

As to claim 17, Fig. 3 of Nishihara teaches the memory device is a RAM (13).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5-12, 20-27, 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara in view of applicant's admitted prior art (Figs. 2A, 2B, and section [0006] of the specification).

As to claims 5, 20, Nishihara teaches the frame data fed into the frame memory are display data, the output data from the frame memory can be converted into display voltages for driving the display, so that the first input frame, second input frame and the output frames having first pixel datum, second pixel datum, and output pixel datum, respectively as claimed.

Nishihara does not disclose the output frames having at least one overdrive output frame. However, the admitted prior art teaches it is well known in the art for driving a display using an overdrive voltage (overdrive output frame) to increase the pixel response rate, the overdrive voltage (e.g., V3) is higher than a voltage (e.g., V2) which is output from a output frame (see second [0006] of the specification). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nishihara to have the overdrive output frame as taught by the admitted prior art so as to increase the pixel response rate when the pixel luminosity needs to be increased.

As to claims 6, 10, 21, 25, Nishihara as modified by the admitted prior art would have the overdrive output frame outputted from the frame processing device as claimed.

As to claims 8, 9, 12, 23, 24, 27, the admitted prior art does not explicitly disclose a overdrive compensation output frame. However, the admitted prior art teaches using overdrive voltages to increase the pixel response rate when the pixel luminosity needs to be increased. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nishihara as modified by the admitted prior art to have the overdrive

compensation output frame as claimed to compensating the pixel data that is smaller than the second pixel data or greater than the second pixel datum so as to provide an uniform pixel luminosity over the entire display.

As to claims 7, 22, the admitted prior art teaches using overdrive voltages to increase the pixel response rate when the pixel luminosity needs to be increased. Thus, Nishihara as modified by the admitted prior art would have display luminosity of a pixel of the display device according to the output pixel datum is greater than the display luminosity of the pixel according to the second pixel datum as claimed so as to provide an uniform pixel luminosity over the entire display.

As to claims 11, 26, the admitted prior art teaches using overdrive voltages to increase the pixel response rate when the pixel luminosity needs to be increased. Thus, Nishihara as modified by the admitted prior art would have display luminosity of a pixel of the display device according to the output pixel datum is less than the display luminosity of the pixel according to the second pixel datum as claimed so as to provide an uniform pixel luminosity over the entire display.

As to claims 30, note the discussion of claim 5 above.

As to claim 31, Nishihara teaches the second frame frequency is a multiple of the first frame frequency (col. 6, lines 42-44).

As to claim 32, Nishihara teaches the relationship among the input frames and the corresponding output frames is determined (set by the clock generating unit) by the physical properties of the LCD panel, the luminance of the LCD panel, and the brightness perceived by human eyes (col. 7, lines 58-65).

As to claims 33, 34, Nishihara teaches the output data from the frame memory can be converted into display voltages for driving the LCD display, such that higher output datum (higher voltage) would have a higher luminosity of a pixel, lower output datum (lower voltage) would have a lower luminosity of a pixel.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nishitani et al (US. PAT. NO. 5,764,212) teaches a matrix type LCD with data electrode driving circuit in which display information for one screen is written into and read out from display memory at mutually different frequencies.

Yanagi et al (US. PAT. NO. 6,741,229) teaches display device and method for driving the same.

Sekiya et al (US. PAT. NO. 6,930,663) teaches a LCD has a overdrive voltage controller.

Shingu et al (US. PAT. NO. 6,008,790) teaches image processing apparatus.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard, can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Regina Liang
Primary Examiner
Art Unit 2674

12/9/05